



Exhibit A

ALIGNMENTS with DiCunto et al Sequence

In re application of:	Kapeller-Libermann, Rosana		
Application No.:	10/017216	Group No.:	1652
Filed:	October 23, 2001	Examiner:	Maryam Monshipouri
For:	13245, A NOVEL HUMAN MYOTONIC DYSTROPHY TYPE PROTEIN KINASE AND USES THEREFOR		

SEQ ID 1 versus Di Cunto NT seq

ALIGN calculates a global alignment of two sequences
version 2.0uPlease cite: Myers and Miller, CABIOS (1989)
>seq id 1

6574 nt vs.

>DiCunto NT SEQ

6954 nt

scoring matrix: DNA, gap penalties: -16/-4

71.3% identity; Global alignment score: 17998

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/tmp/s -----
DiCunt GAGCGGCCGCCCGGGCAGGTCTAGAATTCAGCGCCGCTGAATTCTAGGTGCTGCCGGAG
      10      20      30      40      50      60

/tmp/s -----
DiCunt ACCTCAGGGCCCCCTTAAAGAGGACCCATTCCCCTGTAGACCAGTCTCTGTCCCCTGCAAG
      70      80      90     100     110     120

/tmp/s -----
DiCunt CTTTACCTGCATTCTTGCCCATGGCGCTTCCCATTTTCTGTGTGATCTTATCTCCCTCAC
     130     140     150     160     170     180

/tmp/s -----
DiCunt TTAACTCTCTGTTCCTGTGTCTTCATTCTATGAGCTGGACTGAGGCCTTGGGTGGGAAAG
     190     200     210     220     230     240

/tmp/s -----
DiCunt TGGGCTCTGTATTCTATTCCGTGCCTAACCAGCGCCTCCTTCTGTGTCTTTCTCCCTC
     250     260     270     280     290     300

/tmp/s -----
DiCunt TCTAGCCTATCTGGTCAGTCAGGCAACCGATCTTCCTCAGGATCATGTATCTCTGTACCT
     310     320     330     340     350     360

/tmp/s -----
```

DiCunt	CCAGGGGCAGTGAACCTTCCTTTCCCTGGGATAATCCTCAAGGCTCACTGATCAAACCTT	370	380	390	400	410	420
/tmp/s	-----						
DiCunt	TGGGCTTGGTTCACAGGTTAGGTCTATGTCTAGTACGCGACATCAGATATTTGTGTTCGTC	430	440	450	460	470	480
/tmp/s	-----AGAGCCG-----						
DiCunt	AGGGTTTCTAGGGGAAAAGAGCTGGTAGAATGGAAGTGGAGATTTATTAGGCTGCAG	490	500	510	520	530	540
/tmp/s	-----						
DiCunt	TCTGCTAGTCCACCAATGGCTGGTAGTTCTTTTGAAATGATTTATTTCCATCCCTTATG	550	560	570	580	590	600
/tmp/s	-----						
DiCunt	TGTATGAGTACCTTTGGCCTTCCTGTGTCTGTGCCCCATGTGCCGTGGAGCGTGGTCGCC	610	620	630	640	650	660
/tmp/s	-----						
DiCunt	ACCTCCTCATCCTGATCTCTTTAGGGAGACACGACTCTGCCAAGCCCTTCCTGCCTTCAA	670	680	690	700	710	720
/tmp/s	-----10-----20-----						
DiCunt	TGTCAGTACCCGCTTGACTTTCCCCAGTGTTCCTTCGGCGTTGGCGGAGAGATGTTGAAG	730	740	750	760	770	780
/tmp/s	-----CCAGTG-----GGGAGATGTTGAAG-----						
DiCunt	TTCAAATATGGAGCGCGGAATCCTTTGGATGCTGGTGTCTGCTGAACCCATTGCCAGCCGG	790	800	810	820	830	840
/tmp/s	-----						
DiCunt	TTCAAGTATGGTGTGCGGAACCCGCCGAGGCCAGTGCCTCCGAGCCCATTTGCCAGTCGG	790	800	810	820	830	840
/tmp/s	-----						
DiCunt	GCCTCCAGGCTGAATCTGTTCTTCCAGGGGAAACCACCTTTATGACTCAACAGCAGATG	850	860	870	880	890	900
/tmp/s	-----						
DiCunt	GCCTCCAGGCTAAATCTCTTCTTCCAGGGGAAACCGCCCTCATGACTCAACAGCAGATG	850	860	870	880	890	900
/tmp/s	-----						
DiCunt	TCTCCTCTTTCCCGAGAAGGGATATTAGATGCCCTCTTTGTCTCTTTGAAGATGCAGT	910	920	930	940	950	960
/tmp/s	-----						
DiCunt	TCTGCTCTTTCCCGGAAGGGATGCTAGACGCCCTCTTCGCTCTCTTTGAAGAGTGCAGC	910	920	930	940	950	960
/tmp/s	-----						
DiCunt	CAGCCTGCTCTGATGAAGATTAAGCACGTGAGCAACTTTGTCCGGAAGTATTCCGACACC	970	980	990	1000	1010	1020
/tmp/s	-----						
DiCunt	CAACCCGCCCTGATGAAGATGAAGCACGTGAGCAGCTTTGTCCAGAAGTATTCCGACACC	970	980	990	1000	1010	1020
/tmp/s	-----						
DiCunt	ATAGCTGAGTTACAGGAGCTCCAGCCTTCGGCAAAGGACTTCGAAGTCAGAAGTCTTGTA	1030	1040	1050	1060	1070	1080
/tmp/s	-----						
DiCunt	ATAGCCGAGTTGCGGGAGCTGCAGCCGTTCGGCGAGAGACTTCGAAGTTCGAAGCCTTGTG	1030	1040	1050	1060	1070	1080
/tmp/s	-----						

	DiCunt	GGCTGTGTTGCACCTTCGCTCGCTGAAGTGCAGGTGGTTAGAGAGAAGCGACC	GCCGGGACGTCTAT 1090	1100	1110	1120	1130	1140
/tmp/s		390	400	410	420	430	440	
		GCTATGAAAAGTGATGAAGAAGAAGGCTTTATTGGCCCAGGAGCAGGTTTCATTTTTTGAG	:: :::::	:	::::::::::::::::::::	: :	::::::::::::::::::::	: :::
	DiCunt	GCCATGAAAAATCATGAAGAAGAAGGCTTTGCTGGCCCAGGAACAGGTTTCATTTTCGAG	1150	1160	1170	1180	1190	1200
/tmp/s		450	460	470	480	490	500	
		GAAGAGCGGAACATATTATCTCGAAGCACAAAGCCCGTGGATCCCCCAATTACAGTATGCC	:: ::	::::::::::::::::::::	: :	::::::::::::::::::::	: ::::::::::::::::::::	
	DiCunt	GAGGAGAGGAACATATTATCTCGGAGACGAGTCCTTGGATCCCCCAGTTACAGTACGCC	1210	1220	1230	1240	1250	1260
/tmp/s		510	520	530	540	550	560	
		TTTCAGGACAAAAATCACCTTTATCTGATGGAGGAATATCAGCCTGGAGGGGACTTGCTG	::::::::::::::::::::	:::::::	: :	: :	::::::::::::::::::::	: ::
	DiCunt	TTTCAGGACAAAAATAACCTTTACCTGGTCATGGAATATCAGCCTGGAGGGGATTTCCTG	1270	1280	1290	1300	1310	1320
/tmp/s		570	580	590	600	610	620	
		TCACTTTTGAATAGATATGAGGACCAGTTAGATGAAAACCTGATACAGTTTACCTAGCT	:: :::::	::::::::::::::::::::	: :	: :	::::::::::::::::::::	: ::
	DiCunt	TCGCTTCTGAACAGATACGAGGACCAATTAGATGAGAGCATGATCCAGTTTACCTTGCT	1330	1340	1350	1360	1370	1380
/tmp/s		630	640	650	660	670	680	
		GAGCTGATTTTGGCTGTTCACAGCGTTCATCTGATGGGATACGTGCATCGAGACATCAAG	::::::::::::::::::::	:::::::	: :	: :	::::::::::::::::::::	: ::
	DiCunt	GAGCTGATTTTGGCTGTCCACAGCGTGACCAGATGGGATATGTGCATCGAGACATCAAG	1390	1400	1410	1420	1430	1440
/tmp/s		690	700	710	720	730	740	
		CCTGAGAACATTCTCGTTGACCGCACAGGACACATCAAGCTGGTGGATTTTGGATCTGCC	:: :::::	::::::::::::::::::::	: :	: :	::::::::::::::::::::	: ::
	DiCunt	CCCGAGAACATCCTCATCGACCGGACGGGAGAGATCAAGCTGGTGGATTTTGGATCAGCC	1450	1460	1470	1480	1490	1500
/tmp/s		750	760	770	780	790	800	
		GCGAAAATGAATTCAAACAAGATGGTGAATGCCAAACTCCCCGATTGGGACCCCAGATTAC	:: ::	::::::::::::::::::::	: :	: :	::::::::::::::::::::	: ::
	DiCunt	GCTAAGATGAATTCAAATAAGGTGG---ATGCCAAACTCCCCATTGGGACCCC GGATTAC	1510	1520	1530	1540	1550	
/tmp/s		810	820	830	840	850	860	
		ATGGCTCCTGAAGTGCTGACTGTGATGAACGGGGATGGAAAAGGCACCTACGGCCTGGAC	:: :::::	::::::::::::::::::::	: :	: :	::::::::::::::::::::	: ::
	DiCunt	ATGGCTCCGGAAGTGTTGACCGTGATGAACGAGGACCGAAGGGGCACATACGGCTTGGAC	1560	1570	1580	1590	1600	1610
/tmp/s		870	880	890	900	910	920	
		TGTGACTGGTGGTCA GTGGGCGTGATTGCC TATGAGATGATTTATGGGAGATCCCCCTTC	::::::::::::::::::::	: :	: :	: :	::::::::::::::::::::	: ::
	DiCunt	TGTGACTGGTGGTCTGTCGGAGTTGTTGCTTATGAGATGGTTTATGGGAAGACCCCATTC	1620	1630	1640	1650	1660	1670
/tmp/s		930	940	950	960	970	980	
		GCAGAGGGAACCTCTGCCAGAACCTTCAATAACATTATGAATTTCCAGCGGTTTTTGAAA	:: :::::	::::::::::::::::::::	: :	: :	::::::::::::::::::::	: ::
	DiCunt	ACAGAGGGAACCTCCGCCCCGACCTTCAACAACATCATGA ACTTCCAGCGGTTTTTG AAG	1680	1690	1700	1710	1720	1730
/tmp/s		990	1000	1010	1020	1030	1040	
		TTTCCAGATGACCCCAAAGTGAGCAGTGACTTCTTGATCTGATTCAAAGCTTGTTGTGC	:: ::::::::::::::::::::	::::::::::::::::::::	: :	: :	::::::::::::::::::::	: ::
	DiCunt	TTCCAGATGACCCCAAAGTTAGCAGTGAGCTCCTTGATCTGCTTCAGAGTCTGCTGTGT	1740	1750	1760	1770	1780	1790
/tmp/s		1050	1060	1070	1080	1090	1100	
		GGCCAGAAAGAGAGACTGAAGTTTGAAGGTCTTTGCTGCCATCCTTTCTTCTCTAAAA TT	:: ::::::::::::::::::::	::::::::::::::::::::	: :	: :	::::::::::::::::::::	: ::

DiCunt	GTCCAGAAAGAGAGACTGAAGTTCGAGGGTCTCTGCTGCCACCCTTTCTTTGCCAGAACG					
	1800	1810	1820	1830	1840	1850
	1110	1120	1130	1140	1150	1160
/tmp/s	GACTGGAACAACATTTCGTAACCTCTCCTCCCCCTTCGTTCCCACCCTCAAGTCTGACGAT					

DiCunt	GACTGGAACAACATCCGTAACCTCTCCTCCCCCTTCGTTCCCACCCTCAAGTCTGACGAT					
	1860	1870	1880	1890	1900	1910
	1170	1180	1190	1200	1210	1220
/tmp/s	GACACCTCCAATTTTGATGAACCAGAGAAGAATTTCGTGGG-TTTCATCCTCTCCGTGCCA					

DiCunt	GACACCTCCAATTTTGATGAACCAGAGAAGAATTTCGTGGGCTTTCATCCTCTGTGTGCC					
	1920	1930	1940	1950	1960	1970
	1230	1240	1250	1260	1270	1280
/tmp/s	GCTGAGCCCCTCAGGCTTCTCGGGTGAAGAACTGCCGTTTGTGGGGTTTTTCGTACAGCAA					

DiCunt	GCTGAGCCCCTCGCG-TTCTCAGGCGAAGAGCTGCCGTTTGTGGGATTTCGTACAGCAA					
	1980	1990	2000	2010	2020	2030
	1290	1300	1310	1320	1330	1340
/tmp/s	GGCACTGGGGATTCTTGGTAGATCTGAGTCTGTTGTGTGCGGTCTGGACTCCCCTGCCAA					

DiCunt	GGCACTGGGGTATCTTGGTAGATCTGAGTCTGTGCGTGTGAGTCTGGACTCCCCTGCCAA					
	2040	2050	2060	2070	2080	2090
	1350	1360	1370	1380	1390	1400
/tmp/s	GACTAGCTCCATGGAAAAGAACTTCTCATCAAAGCAAAGAGCTACAAGACTCTCAGGA					

DiCunt	GGTTAGCTCCATGGAAAAGAACTTCTCATCAAAGCAAAGAGCTCCAAGACTCCCAGGA					
	2100	2110	2120	2130	2140	2150
	1410	1420	1430	1440	1450	1460
/tmp/s	CAAGTGTCACAAGATGGAGCAGGAAATGACCCGGTTACATCGGAGAGTGTGAGAGGTGGA					

DiCunt	CAAGTGTCACAAGATGGAGCAGGAAATGACCCGGTTACATCGCAGAGTGTGAGAGGTGGA					
	2160	2170	2180	2190	2200	2210
	1470	1480	1490	1500	1510	1520
/tmp/s	GGCTGTGCTTAGTCAAGAAGGAGGTGGAGCTGAAGGCCTCTGAGACTCAGAGATCCCTCCT					

DiCunt	GGCTGTGCTTAGTCAAGAAGGAGGTGGAGCTGAAGGCCTCTGAGACTCAGAGATCCCTCCT					
	2220	2230	2240	2250	2260	2270
	1530	1540	1550	1560	1570	1580
/tmp/s	GGAGCAGGACCTTGCTACCTACATCACAGAATGCAGTAGCTTAAAGCGAAGTTTGGAGCA					

DiCunt	GGAGCAGGACCTTGCTACCTACATCACAGAATGCAGTAGCTTAAAGCGAAGTTTGGAGCA					
	2280	2290	2300	2310	2320	2330
	1590	1600	1610	1620	1630	1640
/tmp/s	AGCACGGATGGAGGTGTCCAGGAGGATGACAAAGCACTGCAGCTTCTCCATGATATCAG					
	:: ::
DiCunt	AGCGCGGATGGAGGTGTCCAGGAGGATGACAAAGCTCTGCAGCTTCTCCACGACATCCG					
	2340	2350	2360	2370	2380	2390
	1650	1660	1670	1680	1690	1700
/tmp/s	AGAGCAGAGCCGGAAGCTCCAAGAAATCAAAGAGCAGGAGTACCAGGCTCAAGTGAAGA					

DiCunt	AGAGCAGAGCCGGAAGCTCCAGGAGATCAAAGAGCAGGAGTACCAGGCTCAGGTGGAGGA					
	2400	2410	2420	2430	2440	2450
	1710	1720	1730	1740	1750	1760
/tmp/s	AATGAGGTTGATGATGAATCAGTTGGAAGAGGATCTTGCTCTCAGCAAGAAGACGGAGTGA					

DiCunt	GATGAGGCTGATGATGAATCAGCTGGAAGAAGACCTGGTGTCAGCCCGCAGACGCAGCGA					
	2460	2470	2480	2490	2500	2510
	1770	1780	1790	1800	1810	1820
/tmp/s	TCCTACGAATCTGAGCTGAGAGAGTCTCGGCTTGCTGCTGAAGAATTCAAGCGGAAAGC					

DiCunt	TCTCTACGAGTCTGAGCTGAGGGAGTCTCGGCTTGCCGCCGAGGAATTC	AAGCGGAAGGC					
	2520	2530	2540	2550	2560	2570	
	1830	1840	1850	1860	1870	1880	
/tmp/s	GACAGAAATGTCTAGCATAACTGTTGAAGGCTAAGGATCAAGGGAAGCCTGAAGTGGGAGA	:	:	:	:	:	
DiCunt	AAACGAAATGTCTAGCACAACTGATGAAGGCTAAGGACCAAGGGAAGCCTGAAGTGGGAGA	2580	2590	2600	2610	2620	2630
	1890	1900	1910	1920	1930	1940	
/tmp/s	ATATGCGAAACTGGAGAAGATCAATGCTGAGCAGCAGCTCAAAATTCAGGAGCTCCAAGA	:	:	:	:	:	
DiCunt	ATATTCCAAACTGGAGAAGATCAATGCTGAGCAGCAGCTGAAGATCCAGGAGCTCCAGGA	2640	2650	2660	2670	2680	2690
	1950	1960					
/tmp/s	GAAACTGGAGAAGGCTG-----						
DiCunt	GAAGCTGGAGAAGGCTGTAAAAGCCAGCACAGAGGCCACCGAGCTCCTGCAGAAATATCCG	2700	2710	2720	2730	2740	2750
	1970	1980	1990	2000	2010		
/tmp/s	-----CAAAGGAGCGAGCCGAGAGGGAGCTGGAGAAGCTGCAGAACCAGAGGATTCTTC	:	:	:	:	:	
DiCunt	CCAGGCCAAAGGAGCGGAGCAGAGCGGGAGCTAGAGAAGCTACACAACCGGGAAGACTCCTC	2760	2770	2780	2790	2800	2810
	2020	2030	2040	2050	2060	2070	
/tmp/s	TGAAGGCATCAGAAAGAAGCTGGTGGAAGCTGAGGAACGCCGCCATTCTCTGGAGAACAA	:	:	:	:	:	
DiCunt	CGAGGGCATCAAAAAGAAGCTGGTGGAAGCCGAGGAACGCCGCCACTCCCTGGAGAACAA	2820	2830	2840	2850	2860	2870
	2080	2090	2100	2110	2120	2130	
/tmp/s	GGTAAAGAGACTAGAGACCATGGAGCGTAGAGAAAACAGACTGAAGGATGACATCCAGAC	:	:	:	:	:	
DiCunt	GGTAAAGAGACTAGAGACCATGGAGCGTAGAGAGAACAGACTGAAGGATGACATCCAGAC	2880	2890	2900	2910	2920	2930
	2140	2150	2160	2170	2180	2190	
/tmp/s	AAAATCCCAACAGATCCAGCAGATGGCTGATAAAATTCTGGAGCTCGAAGAGAAACATCG	:	:	:	:	:	
DiCunt	AAAGTCCGAACAGATCCAGCAGATGGCTGATAAAATTCTGGAGCTGGAGGAGAAACATCG	2940	2950	2960	2970	2980	2990
	2200	2210	2220	2230	2240	2250	
/tmp/s	GGAGGCCCAAGTCTCAGCCCAGCACCTAGAAGTGCACCTGAAAACAGAAAGAGCAGCACTA	:	:	:	:	:	
DiCunt	GGAGGCTCAGGTCTCAGCTCAACATCTAGAAGTACACTTGAAAACAGAAGAACAGCACTA	3000	3010	3020	3030	3040	3050
	2260	2270	2280	2290	2300	2310	
/tmp/s	TGAGGAAAAGATTAAAGTGTTGGACAATCAGATAAAGAAAGACCTGGCTGACAAGGAGAC	:	:	:	:	:	
DiCunt	CGAGGAAAAGATCAAGGTATTGGACAATCAGATAAAGAAGGACCTGGCCGACAAGGAGAG	3060	3070	3080	3090	3100	3110
	2320	2330	2340	2350	2360	2370	
/tmp/s	ACTGGAGAACATGATGCAGAGACACGAGGAGGAGGCCCATGAGAAGGGCAAAATTCTCAG	:	:	:	:	:	
DiCunt	CCTGGAGAACATGATGCAGAGACACGAGGAGGAGGCCACGAGAAGGGCAAGATCCTCAG	3120	3130	3140	3150	3160	3170
	2380	2390	2400	2410	2420	2430	
/tmp/s	CGAACAGAAGGCGATGATCAATGCTATGGATTCCAAGATCAGATCCCTGGAACAGAGGAT	:	:	:	:	:	
DiCunt	CGAGCAGAAGGCGATGATCAACGCGATGGATTCCAAGATCCGATCCCTGGAGCAGAGGAT	3180	3190	3200	3210	3220	3230
	2440	2450	2460	2470	2480	2490	
/tmp/s	TGTGGAACGTCTGAAGCCAATAAAGTTGCAGCAAATAGCAGTCTTTTACCCAAAGGAA	:	:	:	:	:	

DiCunt	CGTGGAGCTGT	CGGAAGCCA	AAGCTT	GC	CGGCAAA	CAGCAGTCT	CTT	CACCCAGAGGAA
	3240	3250	3260	3270	3280	3290		
/tmp/s	2500	2510	2520	2530	2540	2550		
DiCunt	CATGAAGGCCCA	AAGAAGAGAT	GATTTCTG	AACTCAGGCA	ACAGAAATTT	TACCTGGAGAC		
	3300	3310	3320	3330	3340	3350		
/tmp/s	2560	2570	2580	2590	2600	2610		
DiCunt	ACAGGCTGGGA	AGTTGGAGG	CCCAGAAC	CGAAA	ACTGGAGAG	CAGCTGGAGA	AGATCAG	
	3360	3370	3380	3390	3400	3410		
/tmp/s	2620	2630	2640	2650	2660	2670		
DiCunt	CCACCAAGACC	CACAGTGAC	AAGAATCG	GCTGCTGGA	ACTGGAGAC	AAGATTGCG	GGGAGGT	
	3420	3430	3440	3450	3460	3470		
/tmp/s	2680	2690	2700	2710	2720	2730		
DiCunt	CAGTCTAGAG	CACGAGGAG	CAGAACTG	GAGCTCAAG	CGCCAGCTC	ACAGAGCTA	CAGCT	
	3480	3490	3500	3510	3520	3530		
/tmp/s	2740	2750	2760	2770	2780	2790		
DiCunt	CTCCCTGCAG	GAGCGCGAG	TACAGTTG	ACAGCCCTG	CAGGCTGC	ACGGGCGG	CCCTGGA	
	3540	3550	3560	3570	3580	3590		
/tmp/s	2800	2810	2820	2830	2840	2850		
DiCunt	GAGCCAGCTT	CGCCAGGCG	AAGACAG	AGCTGGA	AAGAGACC	CAGCAGAAG	CTGAAGAGGA	
	3600	3610	3620	3630	3640	3650		
/tmp/s	2860	2870	2880	2890	2900	2910		
DiCunt	GATCCAGGCA	CTCACGGCA	CATAGAGAT	GAAATCC	CAGCGCAA	ATTTGATGCT	CTTCGTAA	
	3660	3670	3680	3690	3700	3710		
/tmp/s	2920	2930	2940	2950	2960	2970		
DiCunt	CAGCTGTACT	GTAATCAC	AGACCTGG	AGGAGCAG	CTAAACCAG	CTGACCGAG	GACAACGC	
	3720	3730	3740	3750	3760	3770		
/tmp/s	2980	2990	3000	3010	3020	3030		
DiCunt	TGAACTCAAC	AACCAAA	ACTTCTACT	TGTCCAA	CAACTCGAT	GAGGCTTCT	TGGCGCCAA	
	3780	3790	3800	3810	3820	3830		
/tmp/s	3040	3050	3060	3070	3080	3090		
DiCunt	CGACGAGATT	TGTACAAC	TGCGAAGT	GAGTGGACC	ATCTCCGCC	GGGAGATC	CACGGAACG	
	3840	3850	3860	3870	3880	3890		
/tmp/s	3100	3110	3120	3130	3140	3150		
DiCunt	AGAGATGCAG	CTTACCAG	CCAGAAG	CAAACGAT	TGGAGGCT	CTGAAGACC	ACGTGCACCAT	
	3900	3910	3920	3930	3940	3950		
/tmp/s	3160	3170	3180	3190	3200	3210		
	GCTGGAGGA	ACAGGTCAT	GGATTTGG	AGGCCCTA	AACGATGAG	CTGCTAGAAA	AAGAGCG	

[illegible]

DiCunt	GAAGCTAGCCCTGGAAAAAGGAAAGGCCGATGCGCGGAGCTGGAGGAGGCCCTTCAGAA					
	4640	4650	4660	4670	4680	4690
/tmp/s	3940	3950	3960	3970	3980	3990
DiCunt	GACCCGCATCGAGCTCCGCTCCGCCCCGGGAGGAAGCTGCCACCGCAAAGCAACGGACCA					
	4700	4710	4720	4730	4740	4750
/tmp/s	4000	4010	4020	4030	4040	4050
DiCunt	CCCACACCCATCCACGCCAGCCACCGCGAGGCAGCAGATCGCCATGTCCGCCATCGTGCG					
	4760	4770	4780	4790	4800	4810
/tmp/s	4060	4070	4080	4090	4100	4110
DiCunt	GTGCGCCAGAGCACCAGCCCAGTGCCATGAGCCTGCTGGCCCCGCCATCCAGCCGAGAAA					
	4820	4830	4840	4850	4860	4870
/tmp/s	4120	4130	4140	4150	4160	4170
DiCunt	GGAGTCTTCAACTCCAGAGGAATTTAGTCGGCGTCTTAAGGAACGCATGCACCACAATAT					
	4880	4890	4900	4910	4920	4930
/tmp/s	4180	4190	4200	4210	4220	4230
DiCunt	TCCTCACCGGATTCAACGTAGGACTGAACATGCGAGCCACAAAGTGTGCTGTGTCTGGA					
	4940	4950	4960	4970	4980	4990
/tmp/s	4240	4250	4260	4270	4280	4290
DiCunt	TACCGTGCACTTTGGACGCCAGGCATCCAAATGTCTCGAATGTGTCAGGTGATGTGTCACCC					
	5000	5010	5020	5030	5040	5050
/tmp/s	4300	4310	4320	4330	4340	4350
DiCunt	CAAGTGCTCCACGTGCTTGCCAGCCACCTGCGGCTTGCCCTGCTGAATATGCCACACACTT					
	5060	5070	5080	5090	5100	5110
/tmp/s	4360	4370	4380	4390	4400	4410
DiCunt	CACCGAGGCCTTCTGCCGTGACAAAATGAACTCCCCAGGTCTCCAGACCAAGGAGCCCAG					
	5120	5130	5140	5150	5160	5170
/tmp/s	4420	4430	4440	4450	4460	4470
DiCunt	CAGCAGCTTGACCTGGAAGGGTGGATGAAAGTGCCAGGAATAACAAACGAGGACAGCA					
	5180	5190	5200	5210	5220	5230
/tmp/s	4480	4490	4500	4510	4520	4530
DiCunt	AGGCTGGGACAGGAAGTACATTGTCTGGAGGGATCAAAAGTCCTCATTTATGACAATGA					
	5240	5250	5260	5270	5280	5290
/tmp/s	4540	4550	4560	4570	4580	4590
DiCunt	AGCCAGAGAAGCTGGACAGAGGCCGGTGGGAAGAATTTGAGCTGTGCCTTCCCGACGGGGA					
	5300	5310	5320	5330	5340	5350
/tmp/s	4600	4610	4620	4630	4640	4650
	TGTATCTATTTCATGGTGCCGTTGGTGCTTCCGAACCTCGCAAATACAGCCAAAGCAGAAA					

DiCunt CGTATCTATTTCATGGTGCCGTTGGTGCTTCAGAACTTGCAAATACCGCCAAAGCAGATGT
5360 5370 5380 5390 5400 5410

/tmp/s -----

DiCunt CCCATACATCCTGAAGATGGAGTCTCACCCACACACCACCTGCTGGCCTGGGAGAACCCCT
5420 5430 5440 5450 5460 5470

/tmp/s -----

DiCunt CTACTTGCTAGCACCCAGCTTCCCCGACAAGCAGCGCTGGGTACCCGCCTTAGAATCTGT
5480 5490 5500 5510 5520 5530

4660 4670 4680
/tmp/s -----AAAAGCAGAAGCTGATGCTAAACTGCTTGAAAA
::: :: :::: ::::: : ::::: :
DiCunt CGTCGCAGGTGGGAGAGTTTCTAGGGAAAAGGCCGAAGCCGATGCTAAATTACTTGAAAA
5540 5550 5560 5570 5580 5590

4690 4700 4710 4720 4730 4740
/tmp/s CTCCCTGCTGAAACTGGAAGGTGATGACCGTCTAGACATGAACGCACGCTGCCCTTCAG
::: ::::: ::::: : ::::: : ::::: :
DiCunt CTCCTGCTGAAACTGGAAGGGCGATGACCGGCTTGACATGAACGCACCCCTGCCCTTCAG
5600 5610 5620 5630 5640 5650

4750 4760 4770 4780 4790 4800
/tmp/s TGACCAGGTGGTGTGGTGGGCACCGAGGAAGGGCTCTACGCCCTGAATGTCTTGAAAAA
::: ::::: ::::: : ::::: : ::::: :
DiCunt TGACCAGGTGGTGTGGTGGGCACCGAGGAAGGGCTCTACGCCCTGAATGTCTTGAAAAA
5660 5670 5680 5690 5700 5710

4810 4820 4830 4840 4850 4860
/tmp/s CTCCCTAACCCATGTCCCAGGAATTGGAGCAGTCTTCCAAATTTATATTATCAAGGACCT
::: ::::: ::::: : ::::: : ::::: :
DiCunt CTCCTTAACCCACATCCCAGGGATTGGCGCAGTCTTCCAAATTTACATCATCAAGGACCT
5720 5730 5740 5750 5760 5770

4870 4880 4890 4900 4910 4920
/tmp/s GGAGAAGCTACTCATGATAGCAGGAGAAGAGCGGGCACTGTGTCTTGTGGACGTGAAGAA
::: ::::: ::::: : ::::: : ::::: :
DiCunt GGAGAAGCTGTCTATGATAGCAGGGGAAGAGCGGGCTCTGTGCCTGGTGGACGTGAAGAA
5780 5790 5800 5810 5820 5830

4930 4940 4950 4960 4970 4980
/tmp/s AGTGAAACAGTCCCTGGCCCACTGCCACCTGCCAGCCGACATCTCACCCAAACAT
::: ::::: ::::: : ::::: : ::::: :
DiCunt GGTGAAGCAGTCCCTGGCGCAGTCACACCTGCCAGCCGACGTCTCCCCCAACAT
5840 5850 5860 5870 5880 5890

4990 5000 5010 5020 5030 5040
/tmp/s TTTTGAAGCTGTCAAGGGCTGCCACTTGTTTGGGGCAGGCAAGATTGAGAACGGGCTCTG
::: ::::: ::::: : ::::: : ::::: :
DiCunt ATTCTGAAGCCGTCAAAGGCTGCCACTTGTTTCGCTGCTGGCAAGATCGAGAACAGCCTGTG
5900 5910 5920 5930 5940 5950

5050 5060 5070 5080 5090 5100
/tmp/s CATCTGTGCAGCCATGCCAGCAAAGTCGTCATTCTCCGCTACAACGAAAACCTCAGCAA
::: ::::: ::::: : ::::: : ::::: :
DiCunt CATCTGCGCCGTATGCCAAGCAAAGTCGTCATCTCCGCTACAATGACAACCTCAGCAA
5960 5970 5980 5990 6000 6010

5110 5120 5130 5140 5150 5160
/tmp/s ATACTGCATCCGAAAGAGATAGAGACCTCAGAGCCCTGCAGCTGTATCCACTTCACCAA
::: ::::: ::::: : ::::: : ::::: :
DiCunt GTACTGCATCCGCAAGGAGATCGAGACCTCAGAGCCCTGCAGCTGTATCCACTTCACCAA
6020 6030 6040 6050 6060 6070

5170 5180 5190 5200 5210 5220
/tmp/s TTACAGTATCCTCATTTGGAACCAATAAATTCTACGAAATCGACATGAAGCAGTACACGCT
::: ::::: ::::: : ::::: : ::::: :

DiCunt CTACAGCATCCTCATTTGGGACCAACAAATTCTATGAGATCGACATGAAGCAGTACACGCT
6080 6090 6100 6110 6120 6130

5230 5240 5250 5260 5270 5280
/tmp/s CGAGGAATTCTGGATAAGAATGACCATTCTTGGCACCTGCTGTGTTTGCCGCTCTTC
:: :: :::::::::: :::: :::::::::::::::::: :::: :::: ::
DiCunt TGATGAGTTCCTGGACAAGAACGACCATTCCTTGGCACCTGCTGTGTTGCGCTCCTCGTC
6140 6150 6160 6170 6180 6190

5290 5300 5310 5320 5330 5340
/tmp/s CAACAGCTTCCCTGTCTCAATCGTGCAGGTGAACAGCGCAGGGCAGCGAGAGGAGTACTT
:::::::::::::::: :: ::::: :::::::::: :::::::::: :::: ::
DiCunt CAACAGCTTCCCTGTCTCCATTGTGCAGGCGAACAGCGCCGGGCAGCGAGAAGAATACCT
6200 6210 6220 6230 6240 6250

5350 5360 5370 5380 5390 5400
/tmp/s GCTGTGTTTCCACGAATTTGGAGTGTTCGTGGATTCTTACGGAAGACGTAGCCGCACAGA
::::: :::::::::::::::::: :::::::::: :::::::::::::::::: :::::::::: ::
DiCunt GCTGTGCTTCCACGAATTTGGGGTGTTCGTGGATTCTTACGGAAGACGTAGCCGCACAGA
6260 6270 6280 6290 6300 6310

5410 5420 5430 5440 5450 5460
/tmp/s CGATCTCAAGTGGAGTCGCTTACCTTTGGCCTTTGCCTACAGAGAACCCTATCTGTTTGT
:::::::::::::::: ::::: :::::::::::::::::: :::::::::: :::::::::: ::
DiCunt TGATCTCAAGTGGAGTCGCTTACCTTGGCCTTCGCCTACAGAGAACCCTATCTGTTTGT
6320 6330 6340 6350 6360 6370

5470 5480 5490 5500 5510 5520
/tmp/s GACCCACTTCAACTCACTCGAAGTAATTGAGATCCAGGCACGCTCCTCAGCAGGGACCCC
::: :::::::::: :: ::::: :::::::::: ::::: ::::: ::::: ::
DiCunt GACTCACTTCAACTCCCTGGAAGTCATTGAGATCCAGGCAGATCCTCACTGGGGAGCCC
6380 6390 6400 6410 6420 6430

5530 5540 5550 5560 5570 5580
/tmp/s TGCCCCGAGCGTACCTGGACATCCCGAACCCGCGCTACCTGGGCCCTGCCATTTCTCAGG
:::::::: :: ::::: :: ::::: :::::::::: :::::::::: ::::: ::
DiCunt TGCCCCGAGCATATCTGGAAATTCCAAACCCTCGCTACCTGGGCCCTGCGATTTCTCCGG
6440 6450 6460 6470 6480 6490

5590 5600 5610 5620 5630 5640
/tmp/s AGCGATTTACTTGGCGTCTCATACCAGGATAAATTAAGGGTCATTTGCTGCAAGGGAAA
:::::::: ::::: :::::::::: ::::: :::::::::: :::::::::: ::::: ::
DiCunt AGCGATTTACTTGGCCTCTCATACCAGGACAAGTTAAGGGTCATATGCTGCAAGGGAAA
6500 6510 6520 6530 6540 6550

5650 5660 5670 5680 5690 5700
/tmp/s CCTCGTGAAGGAGTCCGGCACTGAACACCACCGGGGCGCTCCACCTCCCGCAGCAGCCC
:::::::: :::::::::: ::::: ::::: :::::::::: :::::::::: ::::: ::
DiCunt CCTCGTGAAGGAGTCAGGCACTGAGCAGCACCGGGTGCCCTCCACCTCCCGCAGCAGCCC
6560 6570 6580 6590 6600 6610

5710 5720 5730 5740 5750 5760
/tmp/s CAACAAGCGAGGCCCCACCCACGTACAACGAGCACATCACCAAGCGCGTGGCCTCCAGCCC
:::::::::::::::: ::::: :::::::::::::::::: :::::::::: :::::::::: ::::: ::
DiCunt CAACAAGCGAGGCCCCACCAACATAACAACGAGCACATCACCAAGCGCGTGGCCTCCAGCCC
6620 6630 6640 6650 6660 6670

5770 5780 5790 5800 5810 5820
/tmp/s AGCGCCGCCCCGAAGGCCCCAGCCACCCGCGAGAGCCAAGCACACCCACCGCTACCGCGA
::::: :: :::::::::::::::::: :::::::::: :::::::::: ::::: ::
DiCunt GCGGCCACCGGAAGGCCCCAGCCACCCCGAGAGCCAAGCACACCGCACCGCTACCGAGA
6680 6690 6700 6710 6720 6730

5830 5840 5850 5860 5870 5880
/tmp/s -----GGGGCGGACCGAGCTGCGCAGGGACAAGTCTCCTGGCCGCCCCCTGGAGCGAGA
::: ::::: :::::::::::::::::: :::::::::: :::::::::: ::::: ::
DiCunt CAGAGAGGGTTCGGACAGAGCTGCGCAGGGACAAGTCTCCAGGCCGCCCTCTGGAGCGGGA
6740 6750 6760 6770 6780 6790

5890 5900 5910 5920 5930 5940
/tmp/s GAAGTCCCCCGGCCGATGCTCAGCACGCGGAGAGAGCGGTCCCCCGGGAGGCTGTTTGA
:::::::: ::::: :::::::::::::::::: :::::::::: :::::::::: ::::: ::

DiCunt	GAAGTCCCCAGGCCGAATGCTCAGCACTAGGAGAGCGGTCCCCAGGGAGACTGTTTGA	6800	6810	6820	6830	6840	6850
/tmp/s	5950	5960	5970	5980	5990	6000	
DiCunt	AGACAGCAGCAGGGGCCGGCTGCCTGCGGGAGCCGTGAGGACCCCCTGTCCCAGGTGAA	6860	6870	6880	6890	6900	6910
/tmp/s	6010	6020	6030	6040	6050	6060	
DiCunt	CAAGGGAAGAGGGCAGAGTGCCTCTCAAGTTTTCACGGTTAACACTGTCACCTATTATGA	6920	6930	6940	6950	6960	6970
/tmp/s	6070	6080	6090	6100	6110	6120	
DiCunt	CTGGAATAAAAAGCTGGACAACCTGCCAGCTAACTGGTCAGTCCTGAGGATCATCCAGCT	6980	6990	7000	7010	7020	7030
/tmp/s	6130	6140	6150	6160	6170	6180	
DiCunt	GAATGGAGAAATCCGGCAGCAGGTTGAAAAGTCTGTTCGAGAACAGATTATTGCTGAGC	7040	7050	7060	7070	7080	7090
/tmp/s	6190	6200	6210	6220	6230	6240	
DiCunt	AGAGTTCATGTGACTTCTAGACGTGGTGACTTAAAAAATGGCCTTAAGGCTGCAGAGCCA	7100	7110	7120	7130	7140	7150
/tmp/s	6250	6260	6270	6280	6290	6300	
DiCunt	GCCACCTCTGCTTACAAAAAGAGTACTTAGTGACATGACTGTAAGAAACAATTGTAAAA	7160	7170	7180	7190	7200	7210
/tmp/s	6310	6320	6330	6340	6350	6360	
DiCunt	CCTCATCTAGAAATCAGAAAGCTTCTAATTCTATAGAAATGACACCTCCCTGGAGCCGA	7220	7230	7240	7250	7260	7270
/tmp/s	6370	6380	6390	6400	6410	6420	
DiCunt	GAGACAATCTGTTGTTGATTTTGAAGGACAGGCAAGACCAACACTGTATTTAGTTCCATA	7280	7290	7300	7310	7320	7330
/tmp/s	6430	6440	6450	6460	6470	6480	
DiCunt	GCCAGGCCTCAACAGGGACAAGTGGCTGGCCTTAAAAACACACAGATGACTGGAATGAT	7340	7350	7360	7370	7380	7390
/tmp/s	6490	6500	6510	6520	6530	6540	
DiCunt	GTGTGGCCTCAGTCCCTGTTTCCAGAAATTTTACTGGCAAAGGAGTTAGCATTCATTTTT	7400	7410	7420	7430	7440	7450
/tmp/s	6550	6560	6570				
DiCunt	GGCTTAAGAAAAATCGAGAATGTAGGTTTAGA						

SEQ ID 3 versus DiCunto NT Seq

ALIGN calculates a global alignment of two sequences
version 2.0uPlease cite: Myers and Miller, CABIOS (1989)
>seq id 3

6159 nt vs.

>DiCunto NT SEQ

6954 nt

scoring matrix: DNA, gap penalties: -16/-4
75.0% identity; Global alignment score: 19433

```
/tmp/s -----
DiCunt GAGCGGCCGCCCGGGCAGGTCTAGAATTCAGCGCCGCTGAATTCTAGGTGCTGCCGGAG
        10         20         30         40         50         60

/tmp/s -----
DiCunt ACCTCAGGGCCCCCTTAAAGAGGACCCATTCCCCTGTAGACCAGTCTCTGTCCCCTGCAAG
        70         80         90        100        110        120

/tmp/s -----
DiCunt CTTTACCTGCATTCTTGCCCATGGCGCTTCCCATTTTCTGTGTGATCTTATCTCCCTCAC
        130        140        150        160        170        180

/tmp/s -----
DiCunt TTAACTCTCTGTTCTGTGCTTCATTCTATGAGCTGGACTGAGGCCTTGGGTGGGAAAG
        190        200        210        220        230        240

/tmp/s -----
DiCunt TGGGCTCTGTATTCTATTCCGTGCCTAACCAGCGCCTCCTTCTGTGTCTTTCTCCCTC
        250        260        270        280        290        300

/tmp/s -----
DiCunt TCTAGCCTATCTGGTCAGTCAGGCAACCGATCTTCCTCAGGATCATTGATCTCTGTACCT
        310        320        330        340        350        360

/tmp/s -----
DiCunt CCAGGGGCAGTGAACCTTCCTTTCCCTGGGATAATCCTCAAGGCTCACTGATCAAACCTT
        370        380        390        400        410        420

/tmp/s -----
DiCunt TGGGCTTGGTTCACAGGTTAGGTCTATGTCAGTACGCGACATCAGATATTTGTGTTCGTC
        430        440        450        460        470        480

/tmp/s -----
DiCunt AGGGTTTCTAGGGGAAAAGAGCTGGTAGAATGGAAAAGTGGAGATTATTAGGCTGCAG
        490        500        510        520        530        540

/tmp/s -----
DiCunt TCTGCTAGTCCACCAATGGCTGGTAGTTCTTTTGGAAATGATTTATTTCCATCCCTTATG
        550        560        570        580        590        600
```

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/tmp/s -----
DiCunt TGTATGAGTACCTTTGGCCTTCCTGTGTCTGTGCCCCATGTGCCGTGGAGCGTGGTCGCC
      610      620      630      640      650      660

/tmp/s -----
DiCunt ACCTCCTCATCCTGATCTCTTTAGGGAGACACGACTCTGCCAAGCCCTTCCTGCCTTCAA
      670      680      690      700      710      720

/tmp/s -----ATGTTGAAG
      : : : : : : :
DiCunt TGTCAGTACCCGCTTGACTTTCCCCAGTGTTCCTTCGGCGTTGGCGGAGAGATGTTGAAG
      730      740      750      760      770      780

      10      20      30      40      50      60
/tmp/s TTCAAATATGGAGCGCGGAATCCTTTGGATGCTGGTGCTGCTGAACCCATTGCCAGCCGG
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt TTCAAGTATGGTGTGCGGAACCCGCGGAGGCCAGTGCCTCCGAGCCCATTGCCAGTCGG
      790      800      810      820      830      840

      70      80      90      100      110      120
/tmp/s GCCTCCAGGCTGAATCTGTTCTTCCAGGGGAAACCACCCTTTATGACTCAACAGCAGATG
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt GCCTCCAGGCTAAATCTCTTCTTCCAGGGGAAACCGCCCCTCATGACTCAACAGCAGATG
      850      860      870      880      890      900

      130      140      150      160      170      180
/tmp/s TCTCCTCTTTCCCGAGAAGGGATATTAGATGCCCTCTTTGTTCTCTTTGAAGAATGCAGT
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt TCTGCTCTTTCCCGGAAGGGATGCTAGACGCCCTCTTCGCTCTCTTTGAAGAGTGCAGC
      910      920      930      940      950      960

      190      200      210      220      230      240
/tmp/s CAGCCTGCTCTGATGAAGATTAAGCACGTGAGCAACTTTGTCCGGAAGTATCCGACACC
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt CAACCCGCCCTGATGAAGATGAAGCACGTGAGCAGCTTTGTCCAGAAGTATCCGACACC
      970      980      990      1000      1010      1020

      250      260      270      280      290      300
/tmp/s ATAGCTGAGTTACAGGAGCTCCAGCCTTCGGCAAAGGACTTCGAAGTCAGAAGTCTTGTA
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt ATAGCCGAGTTGCGGGAGCTGCAGCCGTCGGCGAGAGACTTCGAAGTTCGAAGCCTTGTTG
      1030      1040      1050      1060      1070      1080

      310      320      330      340      350      360
/tmp/s GGTTGTGGTCACTTTGCTGAAGTGCAGGTGGTAAGAGAGAAAGCAACCGGGGACATCTAT
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt GGCTGTGGTCACTTCGCTGAAGTGCAGGTGGTTAGAGAGAAGGCGACCGGGGACGCTCTAT
      1090      1100      1110      1120      1130      1140

      370      380      390      400      410      420
/tmp/s GCTATGAAAGTGATGAAGAAGAAGGCTTTATTGGCCCAGGAGCAGGTTTCATTTTTTGAG
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt GCCATGAAAATCATGAAGAAGAAGGCTTTGCTGGCCCAGGAACAGGTTTCATTTTTCGAG
      1150      1160      1170      1180      1190      1200

      430      440      450      460      470      480
/tmp/s GAAGAGCGGAACATATTATCTCGAAGCACAAGCCCGTGGATCCCCCAATTACAGTATGCC
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt GAGGAGAGGAACATATTATCTCGGAGCACGAGTCCTTGGATCCCCCAGTTACAGTACGCC
      1210      1220      1230      1240      1250      1260

      490      500      510      520      530      540
/tmp/s TTTCAGGACAAAAATCACCTTTATCTGATGGAGGAATATCAGCCTGGAGGGGACTTGCTG
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt TTTCAGGACAAAAATAACCTTTACCTGGTCATGGAATATCAGCCTGGAGGGGATTTCCTG
      1270      1280      1290      1300      1310      1320

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550      560      570      580      590      600
/tmp/s  TCACTTTTGAATAGATATGAGGACCAGTTAGATGAAAACCTGATACAGTTTACCTAGCT
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  TCGCTTCTGAACAGATACGAGGACCAATTAGATGAGAGCATGATCCAGTTTACCTTGCT
      1330      1340      1350      1360      1370      1380

610      620      630      640      650      660
/tmp/s  GAGCTGATTTTGGCTGTTACAGCGTTCATCTGATGGGATACGTGCATCGAGACATCAAG
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  GAGCTGATTTTGGCTGTCCACAGCGTGCACCAGATGGGATATGTGCATCGAGACATCAAG
      1390      1400      1410      1420      1430      1440

670      680      690      700      710      720
/tmp/s  CCTGAGAACATTCTCGTTGACCGCACAGGACACATCAAGCTGGTGGATTTTGGATCTGCC
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  CCCGAGAACATCCTCATCGACCGGACGGGAGAGATCAAGCTGGTGGATTTTGGATCAGCC
      1450      1460      1470      1480      1490      1500

730      740      750      760      770      780
/tmp/s  GCGAAAATGAATTCAAACAAGATGGTGAATGCCAAACTCCCGATTGGGACCCAGATTAC
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  GCTAAGATGAATTCAAATAAG---GTGGATGCCAAACTCCCGATTGGGACCCCGATTAC
      1510      1520      1530      1540      1550

790      800      810      820      830      840
/tmp/s  ATGGCTCCTGAAGTGCTGACTGTGATGAACGGGGATGGAAAAGGCACCTACGGCCTGGAC
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  ATGGCTCCGGAAGTGTGACCGTGATGAACGAGGACCGAAGGGGCACATACGGCTTGGAC
      1560      1570      1580      1590      1600      1610

850      860      870      880      890      900
/tmp/s  TGTGACTGGTGGTCAGTGGGCGTGATTGCCTATGAGATGATTTATGGGAGATCCCCCTTC
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  TGTGACTGGTGGTCTGTCTGGAGTTGTTGCTTATGAGATGGTTTATGGGAAGACCCCATTC
      1620      1630      1640      1650      1660      1670

910      920      930      940      950      960
/tmp/s  GCAGAGGGAACCTCTGCCAGAACCTTCAATAACATTATGAATTTCCAGCGTTTTTGAAA
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  ACAGAGGGAACCTCCGCCCGGACCTTCAACAACATCATGAATTTCCAGCGTTTTTGAAG
      1680      1690      1700      1710      1720      1730

970      980      990      1000      1010      1020
/tmp/s  TTTCCAGATGACCCCAAAGTGAGCAGTGACTTTCTTGATCTGATTCAAAGCTTGTGTGTC
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  TTCCAGATGACCCCAAAGTTAGCAGTGAGCTCCTTGATCTGCTTCAGAGTCTGCTGTGT
      1740      1750      1760      1770      1780      1790

1030      1040      1050      1060      1070      1080
/tmp/s  GGCCAGAAAGAGAGACTGAAGTTTGAAGGTCTTTGCTGCCATCCTTCTTCTCTAAAATT
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  GTCCAGAAAGAGAGACTGAAGTTGAGGGTCTCTGCTGCCACCTTCTTTGCCAGAACG
      1800      1810      1820      1830      1840      1850

1090      1100      1110      1120      1130      1140
/tmp/s  GACTGGAACAACATTTCGTAACCTCTCCTCCCCCTTCGTTCCCACCTCAAGTCTGACGAT
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  GACTGGAACAACATCCGTAACCTCTCCTCCCCCTTCGTTCCCACCTCAAGTCTGACGAT
      1860      1870      1880      1890      1900      1910

1150      1160      1170      1180      1190      1200
/tmp/s  GACACCTCCAATTTTGATGAACCAGAGAAGAATTTCGTGGG-TTTCATCCTCTCCGTGCCA
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  GACACCTCCAATTTTGATGAACCAGAGAAGAATTTCGTGGGCTTTCATCCTCTGTGTGCCA
      1920      1930      1940      1950      1960      1970

1210      1220      1230      1240      1250      1260
/tmp/s  GCTGAGCCCCCTCAGGCTTCTCGGGTGAAGAACTGCCGTTTGTGGGGTTTTCGTACAGCAA
      :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::
DiCunt  GCTGAGCCCCCTCGCG-TTCTCAGGCGAAGAGCTGCCGTTTGTGGGATTTTCGTACAGCAA
      1980      1990      2000      2010      2020      2030

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	1270	1280	1290	1300	1310	1320
/tmp/s	GGCACTGGGGATTCTTGGTAGATCTGAGTCTGTTGTGTGCGGTCTGGACTCCCGTGCCAA					
DiCunt	GGCACTGGGGTATCTTGGTAGATCTGAGTCTGTCGTGTCGAGTCTGGACTCCCGTGCCAA					
	2040	2050	2060	2070	2080	2090
	1330	1340	1350	1360	1370	1380
/tmp/s	GACTAGCTCCATGGAAAAGAAACTTCTCATCAAAGCAAAGAGCTACAAGACTCTCAGGA					
DiCunt	GGTTAGCTCCATGGAAAAGAAACTTCTCATCAAAGCAAAGAGCTCCAAGACTCCCAGGA					
	2100	2110	2120	2130	2140	2150
	1390	1400	1410	1420	1430	1440
/tmp/s	CAAGTGTCAACAAGATGGAGCAGGAAATGACCCGGTTACATCGGAGAGTGTCAAGAGGTGGA					
DiCunt	CAAGTGTCAACAAGATGGAGCAGGAAATGACCCGGTTACATCGCAGAGTGTCAAGAGGTGGA					
	2160	2170	2180	2190	2200	2210
	1450	1460	1470	1480	1490	1500
/tmp/s	GGCTGTGCTTAGTCAGAAGGAGGTGGAGCTGAAGGCCTCTGAGACTCAGAGATCCCTCCT					
DiCunt	GGCTGTGCTTAGTCAGAAGGAGGTGGAGCTGAAGGCCTCTGAGACTCAGAGATCCCTCCT					
	2220	2230	2240	2250	2260	2270
	1510	1520	1530	1540	1550	1560
/tmp/s	GGAGCAGGACCTTGCTACCTACATCACAGAATGCAGTAGCTTAAAGCGAAGTTTGAGCA					
DiCunt	GGAGCAGGACCTTGCTACCTACATCACAGAATGCAGTAGCTTAAAGCGAAGTTTGAGCA					
	2280	2290	2300	2310	2320	2330
	1570	1580	1590	1600	1610	1620
/tmp/s	AGCACGGATGGAGGTGTCCAGGAGGATGACAAAGCACTGCAGCTTCTCCATGATATCAG					
DiCunt	AGCGCGGATGGAGGTGTCCAGGAGGATGACAAAGCTCTGCAGCTTCTCCACGACATCCG					
	2340	2350	2360	2370	2380	2390
	1630	1640	1650	1660	1670	1680
/tmp/s	AGAGCAGAGCCGGAAGCTCCAAGAAATCAAAGAGCAGGAGTACCAGGCTCAAGTGGAAGA					
DiCunt	AGAGCAGAGCCGGAAGCTCCAAGGAGATCAAGGAGCAGGAGTACCAGGCTCAGGTGGAGGA					
	2400	2410	2420	2430	2440	2450
	1690	1700	1710	1720	1730	1740
/tmp/s	AATGAGGTTGATGATGAATCAGTTGGAAGAGGATCTTGCTTCAGCAAGAAGACGGAGTGA					
DiCunt	GATGAGGCTGATGATGAATCAGCTGGAAGAAGACCTGGTGTGAGCCCGCAGACGCAGCGA					
	2460	2470	2480	2490	2500	2510
	1750	1760	1770	1780	1790	1800
/tmp/s	TCTCTACGAATCTGAGCTGAGAGAGTCTCGGCTTGCTGTGTAAGAATTCAAGCGGAAAGC					
DiCunt	TCTCTACGAGTCTGAGCTGAGGGAGTCTCGGCTTGCCGCCGAGGAATTCAAGCGGAAGGC					
	2520	2530	2540	2550	2560	2570
	1810	1820	1830	1840	1850	1860
/tmp/s	GACAGAATGTTCAGCATAAACTGTTGAAGGCTAAGGATCAAGGGAAGCCTGAAGTGGGAGA					
DiCunt	AAACGAATGTTCAGCACAAACTGATGAAGGCTAAGGACCAAGGGAAGCCTGAAGTGGGAGA					
	2580	2590	2600	2610	2620	2630
	1870	1880	1890	1900	1910	1920
/tmp/s	ATATGCGAAACTGGAGAAGATCAATGCTGAGCAGCAGCTCAAAATTCAGGAGCTCCAAGA					
DiCunt	ATATTCCAAACCTGGAGAAGATCAATGCTGAGCAGCAGCTGAAGATCCAGGAGCTCCAGGA					
	2640	2650	2660	2670	2680	2690
	1930	1940				
/tmp/s	GAAACTGGAGAAGGCTG-----					
DiCunt	GAAGCTGGAGAAGGCTGTAAAAGCCAGCACAGAGGCCACCGAGCTCCTGCAGAAATATCCG					
	2700	2710	2720	2730	2740	2750

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1950      1960      1970      1980      1990      2000
/tmp/s -----CAAAGGAGCGAGCCGAGAGGGAGCTGGAGAAGCTGCAGAACCGAGAGGATTCTTC
DiCunt CCAGGCCAAAGGAGCGAGCAGAGCGGGAGCTAGAGAAGCTACACAACCGGAAGACTCCTC
2760      2770      2780      2790      2800      2810

2010      2020      2030      2040      2050      2060
/tmp/s TGAAGGCATCAGAAAGAAGCTGGTGGAAAGCTGAGGAACGCCGCCATTCTCTGGAGAACAA
DiCunt CGAGGGCATCAAAAAGAAGCTGGTGGAAAGCCGAGGAACGCCGCCACTCCCTGGAGAACAA
2820      2830      2840      2850      2860      2870

2070      2080      2090      2100      2110      2120
/tmp/s GGTAAAGAGACTAGAGACCATGGAGCGTAGAGAAAAACAGACTGAAGGATGACATCCAGAC
DiCunt GGTAAAGAGACTAGAGACCATGGAGCGTAGAGAGAACAGACTGAAGGATGACATCCAGAC
2880      2890      2900      2910      2920      2930

2130      2140      2150      2160      2170      2180
/tmp/s AAAATCCCAACAGATCCAGCAGATGGCTGATAAAATTCTGGAGCTCGAAGAGAAACATCG
DiCunt AAAGTCCGAACAGATCCAGCAGATGGCTGATAAAATTCTGGAGCTGGAGGAGAAACATCG
2940      2950      2960      2970      2980      2990

2190      2200      2210      2220      2230      2240
/tmp/s GGAGGCCCAAGTCTCAGCCCAGCACCTAGAAGTGCACCTGAAACAGAAAGAGCAGCACTA
DiCunt GGAGGCTCAGGTCTCAGCTCAACATCTAGAAGTACACTTGAACAGAAAGGAACAGCACTA
3000      3010      3020      3030      3040      3050

2250      2260      2270      2280      2290      2300
/tmp/s TGAGGAAAAGATTAAAGTGTGGACAATCAGATAAAGAAAGACCTGGCTGACAAGGAGAC
DiCunt CGAGGAAAAGATCAAGGTATTGGACAATCAGATAAAGAAAGACCTGGCCGACAAGGAGAG
3060      3070      3080      3090      3100      3110

2310      2320      2330      2340      2350      2360
/tmp/s ACTGGAGAACATGATGCAGAGACACGAGGAGGAGGCCCATGAGAAGGGCAAAATTCTCAG
DiCunt CCTGGAGAACATGATGCAGAGACACGAGGAGGAGGCCACGAGAAGGGCAAGATCCTCAG
3120      3130      3140      3150      3160      3170

2370      2380      2390      2400      2410      2420
/tmp/s CGAACAGAAGGCGATGATCAATGCTATGGATTCCAAGATCAGATCCCTGGAACAGAGGAT
DiCunt CGAGCAGAAGGCGATGATCAACGCGATGGATTCCAAGATCCGATCCCTGGAGCAGAGGAT
3180      3190      3200      3210      3220      3230

2430      2440      2450      2460      2470      2480
/tmp/s TGTGGAAGTGTCTGAAGCCAATAAACTTGCAGCAAATAGCAGTCTTTTACCCAAAGGAA
DiCunt CGTGGAGCTGTTCGAAGCCAACAAGCTTGCAGCAAACAGCAGTCTTTCACCCAGAGGAA
3240      3250      3260      3270      3280      3290

2490      2500      2510      2520      2530      2540
/tmp/s CATGAAGGCCCAAGAAGAGATGATTCTGAACCTCAGGCAACAGAAATTTTACCTGGAGAC
DiCunt CATGAAGGCCCCAGGAAGAGATGATCTCAGAACTCAGGCAGCAGAAATTTTACCTGGAGAC
3300      3310      3320      3330      3340      3350

2550      2560      2570      2580      2590      2600
/tmp/s ACAGGCTGGGAAGTGGAGGCCCAGAACCGAAAAGCTGGAGGAGCAGCTGGAGAAGATCAG
DiCunt GCAGGCCGGAAGCTGGAGGCCCAGAACCGAAAAGCTGGAAGAGCAACTGGAGAAGATCAG
3360      3370      3380      3390      3400      3410

2610      2620      2630      2640      2650      2660
/tmp/s CCACCAAGACCACAGTGACAAGAATCGGCTGCTGGAAGCTGGAGACAAGATTGCGGGAGGT
DiCunt CCACCAAGATCACAGTGACAAGAGTCGGCTGCTGGAAGCTGGAACAAGGCTGAGGGAGGT
3420      3430      3440      3450      3460      3470

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	2670	2680	2690	2700	2710	2720
/tmp/s	CAGTCTAGAGCACGAGGAGCAGAACTGGAGCTCAAGCGCCAGCTCACAGAGCTACAGCT					
DiCunt	3480	3490	3500	3510	3520	3530

	2730	2740	2750	2760	2770	2780
/tmp/s	CTCCCTGCAGGAGCGCGAGTCACAGTTGACAGCCCTGCAGGCTGCACGGGCGGCCCTGGA					
DiCunt	3540	3550	3560	3570	3580	3590

	2790	2800	2810	2820	2830	2840
/tmp/s	GAGCCAGCTTCGCCAGGCGAAGACAGAGCTGGAAGAGACCACAGCAGAAGCTGAAGAGGA					
DiCunt	3600	3610	3620	3630	3640	3650

	2850	2860	2870	2880	2890	2900
/tmp/s	GATCCAGGCACCTACGGCACATAGAGATGAAATCCAGCGCAAATTTGATGCTCTTCGTAA					
DiCunt	3660	3670	3680	3690	3700	3710

	2910	2920	2930	2940	2950	2960
/tmp/s	CAGCTGTACTGTAATCACAGACCTGGAGGAGCAGCTAAACCAGCTGACCGAGGACAACGC					
DiCunt	3720	3730	3740	3750	3760	3770

	2970	2980	2990	3000	3010	3020
/tmp/s	TGAACTCAACAACCAAACTTCTACTTGTCCAAACAACTCGATGAGGCTTCTGGCGCCAA					
DiCunt	3780	3790	3800	3810	3820	3830

	3030	3040	3050	3060	3070	3080
/tmp/s	CGACGAGATTGTACAACCTGCGAAGTGAAGTGGACCATCTCCGCCGGGAGATCACGGAACG					
DiCunt	3840	3850	3860	3870	3880	3890

	3090	3100	3110	3120	3130	3140
/tmp/s	AGAGATGCAGCTTACCAGCCAGAAGCAAACGATGGAGGCTCTGAAGACCACGTGCACCAT					
DiCunt	3900	3910	3920	3930	3940	3950

	3150	3160	3170	3180	3190	3200
/tmp/s	GCTGGAGGAACAGGTCATGGATTGGAGGCCCTAAACGATGAGCTGCTAGAAAAAGAGCG					
DiCunt	3960	3970	3980	3990	4000	4010

	3210	3220	3230	3240	3250	3260
/tmp/s	GCAGTGGGAGGCCTGGAGGAGCGTCTGGGTGATGAGAAATCCCAGTTTGAGTGTGCGGT					
DiCunt	4020	4030	4040	4050	4060	4070

	3270	3280	3290	3300	3310	3320
/tmp/s	TCGAGAGCTGCAGAGAATGCTGGACACCGAGAAACAGAGCAGGGCGAGAGCCGATCAGCG					
DiCunt	4080	4090	4100	4110	4120	4130

	3330	3340	3350	3360	3370	3380
/tmp/s	GATCACCGAGTCTCGCCAGGTGGTGGAGCTGGCAGTGAAGGAGCACAAGGCTGAGATTCT					
DiCunt	4140	4150	4160	4170	4180	4190

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      3390      3400      3410      3420      3430      3440
/tmp/s CGCTCTGCAGCAGGCTCTCAAAGAGCAGAAGCTGAAGGCCGAGAGCCTCTCTGACAAGCT
DiCunt .....
      4200      4210      4220      4230      4240      4250
      3450      3460      3470      3480      3490      3500
/tmp/s CAATGACCTGGAGAAGAAGCATGCTATGCTTGAAATGAATGCCCCGAAGCTTACAGCAGAA
DiCunt .....
      4260      4270      4280      4290      4300      4310
      3510      3520      3530      3540      3550      3560
/tmp/s GCTGGAGACTGAACGAGAGCTCAAACAGAGGCTTCTGGAAGAGCAAGCCAAATTACAGCA
DiCunt .....
      4320      4330      4340      4350      4360      4370
      3570      3580      3590      3600      3610      3620
/tmp/s GCAGATGGACCTGCAGAAAAATCACATTTTCCGTCTGACTCAAGGACTGCAAGAAGCTCT
DiCunt .....
      4380      4390      4400      4410      4420      4430
      3630      3640      3650      3660      3670      3680
/tmp/s AGATCGGGCTGATCTACTGAAGACAGAAAGAGTACTTGGAGTATCAGCTGGAAAACAT
DiCunt .....
      4440      4450      4460      4470      4480      4490
      3690      3700      3710      3720      3730      3740
/tmp/s TCAGGTTCTCTATTCTCATGAAAAGGTGAAAATGGAAGGCACATTTCTCAACAAACCAA
DiCunt .....
      4500      4510      4520      4530      4540      4550
      3750      3760      3770      3780      3790      3800
/tmp/s ACTCATTGATTTTCTGCAAGCCAAAATGGACCAACCTGCTAAAAAGAAAAAGGGTTTATT
DiCunt .....
      4560      4570      4580      4590      4600
      3810      3820      3830      3840      3850      3860
/tmp/s TAGTCGACGGAAGAGGACCCTGCTTTACCCACACAGGTTCCCTCTGCAGTACAATGAGCT
DiCunt .....
      4610      4620      4630
      3870      3880      3890      3900      3910      3920
/tmp/s GAAGCTGGCCCTGGAGAAGGAGAAAGCTCGCTGTGCAGAGCTAGAGGAAGCCCTTCAGAA
DiCunt .....
      4640      4650      4660      4670      4680      4690
      3930      3940      3950      3960      3970      3980
/tmp/s GACCCGCATCGAGCTCCGGTCCGCCCGGGAGGAAGCTGCCCACCGCAAAGCAACGGACCA
DiCunt .....
      4700      4710      4720      4730      4740      4750
      3990      4000      4010      4020      4030      4040
/tmp/s CCCACACCCATCCACGCCAGCCACCGCGAGGCAGCAGATCGCCATGTCCGCCATCGTGCG
DiCunt .....
      4760      4770      4780      4790      4800      4810
      4050      4060      4070      4080      4090      4100
/tmp/s GTCGCCAGAGCACCAGCCCAGTGCCATGAGCCTGCTGGCCCCGCCATCCAGCCGCAGAAA
DiCunt .....
      4820      4830      4840      4850      4860      4870

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      4110      4120      4130      4140      4150      4160
/tmp/s GGAGTCTTCAACTCCAGAGGAATTTAGTCGGCGTCTTAAGGAACGCATGCACCACAATAT
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt GGAGTCGTCAACTCCAGAGGAATTCAGCCGGCGTCTGAAAGAGCGCATGCACCACAACAT
      4880      4890      4900      4910      4920      4930

      4170      4180      4190      4200      4210      4220
/tmp/s TCCTCACCGATTCAACGTAGGACTGAACATGCGAGCCACAAAGTGCTGTGTGTCTGGA
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt CCCTCACCGTTTAAATGTGGGCCTGAACATGAGAGCCACCAAGTGCGCCGTGTGTCTGGA
      4940      4950      4960      4970      4980      4990

      4230      4240      4250      4260      4270      4280
/tmp/s TACCGTGCACCTTTGGACGCCAGGCATCCAAATGTCTCGAATGTCAGGTGATGTGTACCC
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt TACTGTGCACCTTTGGACGCCAGGCATCCAAATGCCTCGAATGTCAAGTGATGTGTACCC
      5000      5010      5020      5030      5040      5050

      4290      4300      4310      4320      4330      4340
/tmp/s CAAGTGCTCCACGTGCTTGCCAGCCACCTGCGGCTTGCTGCTGAATATGCCACACACTT
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt CAAATGCTCCACCTGCTTGCCCGCTACCTGTGGCCTGCCAGCTGAATATGCCACACACTT
      5060      5070      5080      5090      5100      5110

      4350      4360      4370      4380      4390      4400
/tmp/s CACCGAGGCCTTCTGCCGTGACAAAATGAACTCCCCAGGTCCTCAGACCAAGGAGCCAG
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt CACTGAGGCCTTCTGCCGGGACAAAATGAACTCCCCGGGGCTCAGAGCAAGGAGCCTGG
      5120      5130      5140      5150      5160      5170

      4410      4420      4430      4440      4450      4460
/tmp/s CAGCAGCTTGACCTGGAAGGGTGGATGAAGGTGCCCAGGAATAACAAACGAGGACAGCA
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt CAGCAGCTTGACCTGGAAGGGTGGATGAAAGTGCCAGAAATAACAAACGGGGACAGCA
      5180      5190      5200      5210      5220      5230

      4470      4480      4490      4500      4510      4520
/tmp/s AGGCTGGGACAGGAAGTACATTGTCTGAGGGATCAAAAGTCCTCATTTATGACAATGA
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt AGGCTGGGACAGGAAGTACATTGTCTGAGGGGTCAAAAGTCCTCATCTATGACAATGA
      5240      5250      5260      5270      5280      5290

      4530      4540      4550      4560      4570      4580
/tmp/s AGCCAGAGAAGCTGGACAGAGGCCGGTGGAAGAATTTGAGCTGTGCCTTCCCGACGGGGA
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt AGCCAGAGAAGCTGGACAGAGGCCGGTGGAAGAATTTGAGCTGTGCCTTCTTGACGGGGA
      5300      5310      5320      5330      5340      5350

      4590      4600      4610      4620      4630
/tmp/s TGTATCTATTTCATGGTGCCGTTGGTGCTTCCGAACTCGCAAATACAGCCAAAGCAGA---
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt CGTATCTATTTCATGGTGCCGTTGGTGCTTCCGAACTCGCAAATACCGCCAAAGCAGATGT
      5360      5370      5380      5390      5400      5410

/tmp/s -----

DiCunt CCCATACATCCTGAAGATGGAGTCTACCCACACACCACCTGCTGGCCTGGGAGAACCTT
      5420      5430      5440      5450      5460      5470

/tmp/s -----

DiCunt CTACTTGCTAGCACCCAGCTTCCCCGACAAGCAGCGCTGGGTACCCGCCTTAGAATCTGT
      5480      5490      5500      5510      5520      5530

      4640      4650      4660      4670
/tmp/s -----AAAAGCAGAAGCTGATGCTAAACTGCTTGGA
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
DiCunt CGTCGAGGTGGGAGAGTTTCTAGGGAAAAGCCGAAGCCGATGCTAAATTACTTGGA
      5540      5550      5560      5570      5580      5590

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	4680	4690	4700	4710	4720	4730
/tmp/s	CTCCCTGCTGAAACTGGAAGGTGATGACCGTCTAGACATGAACTGCACGCTGCCCTTCAG					
	::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	CTCTCTGCTGAAACTGGAGGGCGATGACCGGCTTGACATGAACTGCACCTGCCCTTCAG					
	5600	5610	5620	5630	5640	5650

	4740	4750	4760	4770	4780	4790
/tmp/s	TGACCAGGTGGTGTGGTGGGCACCGAGGAAGGGCTCTACGCCCTGAATGTCTTGAAAAA					
	:::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	TGACCAGGTGGTGTGGTGGGCACCGAGGAAGGGCTCTACGCCCTGAATGTCTTGAAAAA					
	5660	5670	5680	5690	5700	5710

	4800	4810	4820	4830	4840	4850
/tmp/s	CTCCCTAACCCATGTCCCAGGAATTGGAGCAGTCTTCCAAATTTATATTATCAAGGACCT					
	::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	CTCCTTAACCCACATCCCAGGGATTGGCGCAGTCTTCCAAATTTACATCATCAAGGACCT					
	5720	5730	5740	5750	5760	5770

	4860	4870	4880	4890	4900	4910
/tmp/s	GGAGAAGCTACTCATGATAGCAGGAGAAGAGCGGGCACTGTGTCTTGTGGACGTGAAGAA					
	:::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	GGAGAAGCTGCTCATGATAGCAGGGGAAGAGCGGGCTCTGTGCCTGGTGGACGTGAAGAA					
	5780	5790	5800	5810	5820	5830

	4920	4930	4940	4950	4960	4970
/tmp/s	AGTGAACAGTCCCTGGCCCAGTCCCACCTGCCTGCCCAGCCCGACATCTCACCCACAT					
	::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	GGTGAAGCAGTCCCTGGCGCAGTACACCTGCCTGCCCAGCCCGACGTCTCCCCAACAT					
	5840	5850	5860	5870	5880	5890

	4980	4990	5000	5010	5020	5030
/tmp/s	TTTTGAAGCTGTCAAGGGCTGCCACTTGTTTGGGGCAGGCAAGATTGAGAACGGGCTCTG					
	::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	ATTCTGAAGCCGTCAAAGGCTGCCACTTGTTTCGCTGCTGGCAAGATCGAGAACAGCCTGTG					
	5900	5910	5920	5930	5940	5950

	5040	5050	5060	5070	5080	5090
/tmp/s	CATCTGTGCAGCCATGCCCAGCAAAGTCGTCTTCTCCGCTACAACGAAAACCTCAGCAA					
	:::::::::::: ::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	CATCTGCGCCGCTATGCCAAGCAAAGTCGTCTCTCCGCTACAATGACAACCTCAGCAA					
	5960	5970	5980	5990	6000	6010

	5100	5110	5120	5130	5140	5150
/tmp/s	ATACTGCATCCGGAAGAGATAGAGACCTCAGAGCCCTGCAGCTGTATCCACTTCACCAA					
	:::::::::::: ::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	GTACTGCATCCGCAAGGAGATCGAGACCTCAGAGCCCTGCAGCTGTATCCACTTCACCAA					
	6020	6030	6040	6050	6060	6070

	5160	5170	5180	5190	5200	5210
/tmp/s	TTACAGTATCCTCATTGGAACCAATAAATTCTACGAAATCGACATGAAGCAGTACACGCT					
	::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	CTACAGCATCCTCATTGGGACCAACAAATTCTATGAGATCGACATGAAGCAGTACACGCT					
	6080	6090	6100	6110	6120	6130

	5220	5230	5240	5250	5260	5270
/tmp/s	CGAGGAATTCCCTGGATAAGAATGACCATTCCCTTGGCACCTGCTGTGTTGCCGCCTCTTC					
	::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	TGATGAGTTCCCTGGACAAGAAGACCATTCCTTGGCACCTGCTGTGTTCCGCTCCTCGTC					
	6140	6150	6160	6170	6180	6190

	5280	5290	5300	5310	5320	5330
/tmp/s	CAACAGCTTCCCTGTCTCAATCGTGCAGGTGAACAGCGCAGGGCAGCGAGAGGAGTACTT					
	:::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	CAACAGCTTCCCTGTCTCCATTGTGCAGGCGAACAGCGCCGGGCAGCGAGAAGAATACCT					
	6200	6210	6220	6230	6240	6250

	5340	5350	5360	5370	5380	5390
/tmp/s	GCTGTGTTTCCACGAATTTGGAGTGTTCGTGGATTCTTACGGAAGACGTAGCCGCACAGA					
	::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: :::::::::::::: ::::::::::::::					
DiCunt	GCTGTGCTTCCACGAATTTGGGGTGTTCGTGGATTCTTACGGAAGACGTAGCCGCACAGA					
	6260	6270	6280	6290	6300	6310

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5400      5410      5420      5430      5440      5450
/tmp/s CGATCTCAAGTGGAGTCGCTTACCTTTGGCCTTGCCTACAGAGAACCTATCTGTTTGT
DiCunt TGATCTCAAGTGGAGTCGCTTACCTCTGGCCTTCGCCTACAGAGAACCTATCTGTTTGT
6320      6330      6340      6350      6360      6370

5460      5470      5480      5490      5500      5510
/tmp/s GACCCACTTCAACTCACTCGAAGTAATTGAGATCCAGGCACGCTCCTCAGCAGGGACCCC
DiCunt GACTCACTTCAACTCCCTGGAAGTCATTGAGATCCAGGCCAGATCCTCACTGGGGAGCCC
6380      6390      6400      6410      6420      6430

5520      5530      5540      5550      5560      5570
/tmp/s TGCCCGAGCGTACCTGGACATCCCGAACCCGCGCTACCTGGGCCCTGCCATTTCTCTCAGG
DiCunt TGCCCGAGCATATCTGGAATTCCAAACCTCGCTACCTGGGCCCTGCGATTTCTCTCCGG
6440      6450      6460      6470      6480      6490

5580      5590      5600      5610      5620      5630
/tmp/s AGCGATTTACTTGGCGTCCTCATACCAGGATAAATTAAGGGTCATTGCTGCAAGGGAAA
DiCunt AGCGATTTACTTGGCGTCCTCATACCAGGACAAGTTAAGGGTCATATGCTGCAAGGGAAA
6500      6510      6520      6530      6540      6550

5640      5650      5660      5670      5680      5690
/tmp/s CCTCGTGAAGGAGTCCGGCACTGAACACCACCGGGGCCCGTCCACCTCCCGCAGCAGCCC
DiCunt CCTCGTGAAGGAGTCCGGCACTGAGCAGCACCGGGTGCCCTCCACCTCCCGCAGCAGCCC
6560      6570      6580      6590      6600      6610

5700      5710      5720      5730      5740      5750
/tmp/s CAACAAGCGAGGCCCACCCACGTACAACGAGCACATACCAAGCGCGTGGCCTCCAGCCC
DiCunt CAACAAGCGAGGCCCACCAACATACAACGAGCACATACCAACGCGTGGCCTCCAGCCC
6620      6630      6640      6650      6660      6670

5760      5770      5780      5790      5800      5810
/tmp/s AGCGCCGCCCCGAAGGCCCCAGCCACCCGCGAGAGCCAAGCACACCCACCGCTACCGCGA
DiCunt GGCGCCACCGGAAGGCCCCAGCCACCCCGAGAGCCAAGCACACCGCACCGCTACCGAGA
6680      6690      6700      6710      6720      6730

5820      5830      5840      5850      5860
/tmp/s -----GGGGCGGACCGAGCTGCGCAGGGACAAGTCTCTGGCCGCCCCCTGGAGCGAGA
DiCunt CAGAGAGGGTTCGGACAGAGCTGCGCAGGGACAAGTCTCCAGGCCGCCCTCTGGAGCGGGA
6740      6750      6760      6770      6780      6790

5870      5880      5890      5900      5910      5920
/tmp/s GAAGTCCCCCGGCCGGATGCTCAGCACGCGGAGAGCGGTCCCCCGGGAGGCTGTTTGA
DiCunt GAAGTCCCCAGGCCGAATGCTCAGCACTAGGAGAGAGCGGTCCCCAGGGAGACTGTTTGA
6800      6810      6820      6830      6840      6850

5930      5940      5950      5960      5970      5980
/tmp/s AGACAGCAGCAGGGGCCGGCTGCCTGCGGGAGCCGTGAGGACCCCGCTGTCCAGGTGAA
DiCunt AGACAGCAGCAGGGGCCGGCTGCCTGCGAGCAGTGAGGACCCCACTGTCCAGGTAA
6860      6870      6880      6890      6900      6910

5990      6000      6010      6020      6030      6040
/tmp/s CAAGGGAAGAGGGCAGAGTGCCTCTCAAGTTTTACGGTTAACACTGTCACCTATTATGA
DiCunt CAAGG-----TCTG-----
6920

6050      6060      6070      6080      6090      6100
/tmp/s CTGGAATAAAAAGCTGGACAACCTGCCAGCTAACTGGTCAGTCTGAGGATCATCCAGCT
DiCunt -----GGAC-----CAGTCTCAGTATAAGTC-----
6930      6940

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6110 6120 6130 6140 6150
/tmp/s GAATGGAGAAATCCGGCAGCAGGTTGAAAAGTCTGTTCTGAGAACAGATTATTGC
:: : :: :
DiCunt -----TCAGCCAG-----AAAA-----
6950